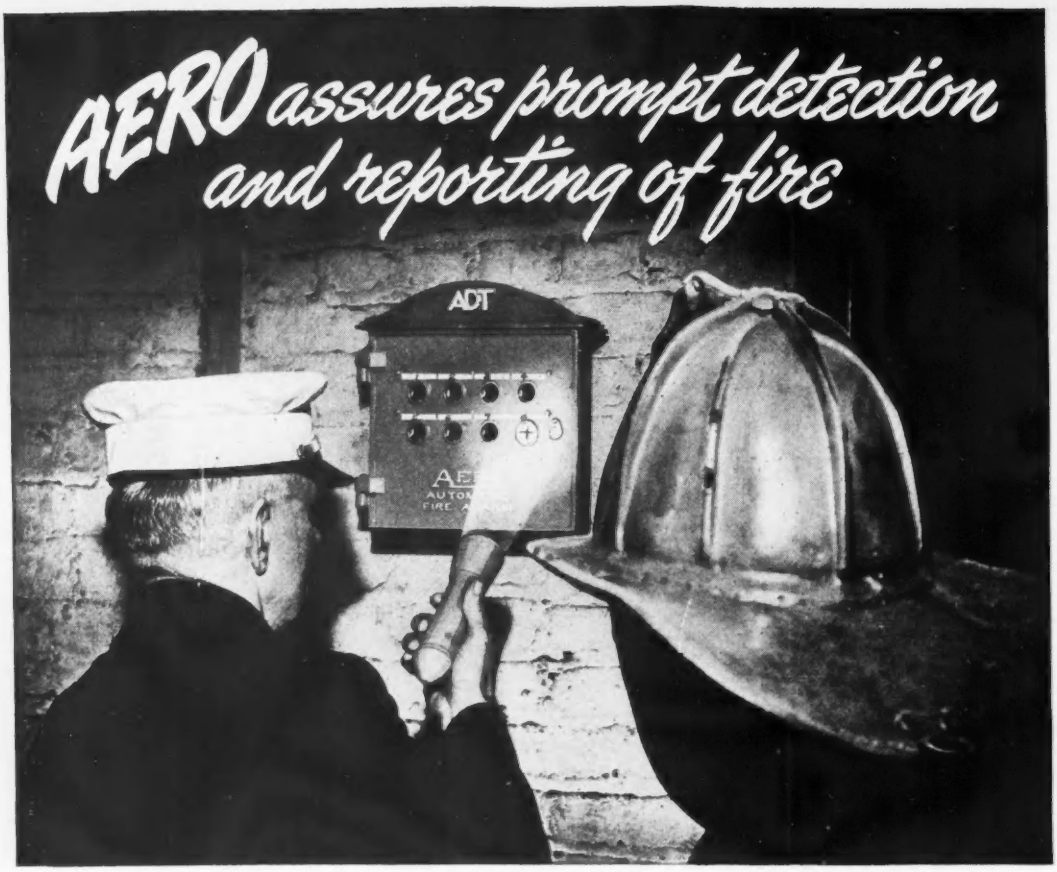
Volunteer Firemen

OCTOBER

1942

NATIONAL FIRE PROTECTION ASSOCIATION
INTERNATIONAL
60 Batterymarch Street Boston, Massachusetts

VOLUME 9, NUMBER 10, COPYRIGHT 1942 NATIONAL FIRE PROTECTION ASSOCIATION — PRINTED IN U. S. A.



Thousands of concerns find A. D. T. Automatic Protection Systems a wartime necessity

No matter how complete your present fire protection may *seem*, your fire defenses are but halfway measures unless they include means for *detecting and reporting fire automatically*. For only by automatic means can you have the assurance that fire will be discovered and the alarm transmitted in those vital first few minutes that may mean the difference between an incident and a disaster.

The A.D.T. Aero Automatic Fire Alarm effectively and economically eliminates the hazards of belated discovery and delayed alarms. No matter where on the premises a fire may start...no matter what the hour of day or night...Aero automatically detects the outbreak *when it starts*, and automatically summons the fire department direct to the premises.

For sprinklered properties, A.D.T. provides Sprinkler Supervisory and Waterflow Alarm Service, which automatically summons the fire department the instant a sprinkler head opens. This service also automatically detects and reports trouble conditions (whether caused by accident or sabotage) that might impair the sprinkler's effectiveness.

Write for free descriptive booklets.

A. D. T. AUTOMATIC FIRE DETECTING AND REPORTING SYSTEMS

Controlled Companies of **AMERICAN DISTRICT TELEGRAPH CO.** *155 Sixth Avenue, New York, N. Y.*

CENTRAL STATION OFFICES IN ALL PRINCIPAL CITIES OF THE UNITED STATES

ADT

Electric Protection Services

AGAINST FIRE · BURGLARY · HOLDUP

A NATION-WIDE ORGANIZATION

Volunteer Firemen

Volume 9 Number 10

Published by the National Fire Protection Association, a voluntary non-profit organization, 60 Batterymarch St., Boston, Mass.

Percy Bugbee General Manager
Robert S. Moulton Technical Secretary
Horatio Bond Chief Engineer
Warren Y. Kimball Associate Editor
Charles S. Morgan Advertising Manager

CONTENTS
For October, 1942

	Page
N.F.P.A. Field Engineering Service	4
Coast Guard Fireboat Fleet	5
Local Defense Council Organization	5
A Volunteer Department Reports its Summer Workouts	6
Schoolboy Firemen Do a Good Job	7
Recipe for Destruction	8
Japanese Fire Bombs	10
San Antonio Skid Hose Load	12
Practice Incendiary Bombs Available —But!	12
No Hose for Stirrup Pumps	13
New Texts and Film	13
Pyrene Prize Letter Contest	14

THE cover picture this month (photo by William W. Lavendar, Mobile Press-Register) shows one of the worst fires of the past summer. The blaze took place on August 8, in the J. C. Sanders Cotton Mill at Prichard, near Mobile, Alabama. Fire started at 2:30 A. M. and the local fire department responded and laid a line from a private hydrant but were unable to secure water. Help was called from the Mobile Department which upon arrival found that the main valve to the 50,000 gallon water tank was closed but by this time the fire had gained great headway. Due to lack of steam pressure at the time of the fire it was another thirty minutes before the plant fire pump could be put into operation. Local newspapers quoted Mayor Dismukes of Prichard as stating that priority restrictions had prevented the community from obtaining a needed fire truck and hydrants. The loss is reported upward of $500,000.

IN an interesting bulletin sent last month to all Division Marshals and Chiefs of Battalions of the Chicago Fire Department, Chief Fire Marshal Anthony J. Mullaney comments upon the improved fire record in that city during recent months. The bulletin points out that since May the number of alarms experienced in Chicago has been substantially below the 1941 experience for the same months. The bulletin states in part: "A study of these figures compliments the excellent work done in the field in promoting civilian defense work and proves that it has not been wasted effort, but rather is paying a fine dividend in reduced fire response and fire extinguishing activities.

"The increase in business and industrial activity in 1942 over 1941 naturally increases the number of alarms of fire. With the advent of civilian defense activities, including the training of auxiliary firemen, there was a notable decrease in percentage of alarms indicating, undoubtedly, that the training and information acquired at these sessions and in turn disseminated by the trainees, has been beneficial."

THE year 1942 got off to a very bad start as far as fire losses were concerned. Losses for the first two months were nearly $14,000,000 above January and February, 1941, not including the huge loss involved in the destruction of the liner *Normandie* while being converted into a naval auxiliary vessel. Since that time the fire protection forces of the nation have dug their toes in and have not only been holding their ground but in the past six months have actually gained back all of the "handicap" caused by the serious losses of the first two months. Possibly much of the credit for the recent improvement in the face of wartime conditions of speeded-up production and increased hazards arises from the fact that since the great San Francisco conflagration of 1906, no other fire has so challenged the attention of the American people. This fire opened their ears and their hearts to the fire prevention message which the various fire fighting organizations of the country had been urging upon their fellow citizens as a wartime patriotic necessity. People perhaps began to believe that "Every Fire Helps the Axis" and that "Fire is the Friend of the Enemy." They began to see that the payment of fire losses was not just the responsibility of insurance companies, but that goods destroyed by fire are lost to our side in this fight.

Doubtless all firemen are more or less familiar with Charles Lamb's famous "Dissertation on Roast Pig" which described the invention of cooking as the accidental burning of a building housing a pig and that thereafter, supposedly, a house was burned each time roast pig was called for on the menu. It is to be seriously hoped that our American people will not require the burning of a *Normandie* or of 14,000 tons of rubber stock as in last year's Fall River conflagration, to keep them alert to the destructiveness of fire in the future.

While the 1942 fire record in the United States is holding pretty well at about the 1941 level of destructiveness, many serious fires are occurring almost daily to "sabotage" the war effort. Each fire department, paid, volunteer, or industrial, has a real job to do to make sure that some vital plant is not lost by fire. Fire department and fire brigade members are frequently able to spot fire hazard conditions that may cause fires and thus take action before trouble develops.

LAST month nine departments with 102 men joined the Volunteer Firemen's Section for the first time. Twenty-one departments with 402 men renewed membership. This makes a total enrollment of 758 departments and 15,132 men. The following departments are newly enrolled:

Northlake Village Fire Department, Melrose Park, Illinois.
Holbrook Volunteer Fire Department, Holbrook, Nebraska.
Pennington Road Fire Company, Trenton, New Jersey.
Strong Steel Foundry Company, Buffalo, New York
Mineola Fire Company No. 2, Mineola, New York
Wewoka Fire Department, Wewoka, Oklahoma.
Lampasas Volunteer Fire Department, Lampasas, Texas.
Millwood Volunteer Fire Department, Millwood, Washington.
South Parkersburg Volunteer Fire Department, South Parkersburg, W. Va.

THE estimated U. S. fire loss for August, 1942, according to the National Board of Fire Underwriters, is $19,680,000, a decrease of $4,442,000 from the same month last year. Losses for the first eight months of 1942 were $601,000 less than for the same period of 1941. These figures are based on notices of incurred loss received by insurance companies, members of the board, plus an allowance for unreported and uninsured losses. The following table shows the losses for the first eight months of 1941 and 1942.

	1941	1942
January	$26,470,000	$35,565,000
February	26,102,000	30,819,000
March	31,471,000	30,505,000
April	29,330,000	27,960,000
May	25,637,000	23,233,000
June	24,943,000	22,410,000
July	23,698,000	21,000,000
August	24,122,000	19,680,000
Total 8 months	$211,773,000	$211,172,000

N. F. P. A. Field Engineering Service

By PERCY BUGBEE
GENERAL MANAGER, N.F.P.A.

THE National Fire Protection Association was organized in 1896, but it was not until 1924, 28 years after the Association was established, that its Field Engineering Service was launched. In the early years of the Association's life its members were primarily engaged in the development of effective engineering standards covering the whole range of fire waste control. It became apparent that the vast amount of engineering knowledge developed by the Association was, to a large extent, ineffective if it could not be translated into action in the field.

The Field Engineering Service was, therefore, organized to provide information and advice to the various municipalities, states and provinces throughout the United States and Canada as to ways and means to prevent loss of life and property from fire; to plan local fire prevention programs specifically designed to meet the needs of the particular community based on a study of local fire records, and to provide a medium of distribution of worthwhile and workable fire prevention ideas developed in any city for the benefit of other cities. The financing of this work was a special problem and beyond the normal income of the Association. The Field Engineering Service has been financed on a modest basis since its inception by contribution by members and others interested in maintaining this work. Most of the financial support comes from large industrial concerns that have recognized the fundamental value to business and industry in the reduction of fire waste.

The financing has been accomplished through appeals by a distinguished group of sponsors. The present membership of the Sponsors Committee is as follows:

Henry D. Sharpe, President, Brown & Sharpe Co., Chairman
S. L. Avery, President, Montgomery, Ward & Co.
Julius H. Barnes, President, Erie & St. Lawrence Corp.
J. B. Book, Jr., President, Building Management Co.
Lewis H. Brown, President, Johns-Manville Corp.
Walter S. Bucklin, President, National Shawmut Bank
Nicholas Murray Butler, President, Columbia University
Newcomb Carlton, Chairman of Board, Western Union Telegraph Co.
Karl T. Compton, President, Massachusetts Institute of Technology.
Howard Coonley, Chairman of Board, Walworth Co.
Lammot duPont, Chairman of Board, E. I. duPont de Nemours & Co.
W. S. Gifford, President, American Telephone & Telegraph Co.
F. W. Lovejoy, Chairman of Board, Eastman Kodak Co.
Edwin G. Merrill, Chairman of Board, Bank of New York
F. T. Moses, President, Firemen's Mutual Insurance Co.
W. H. Pouch, President, Concrete Steel Co.
Alfred P. Sloan, Jr., Chairman of Board, General Motors Corp.

IT is to this group of far-seeing capable business leaders of the country that the Association is indebted for the continuous operation of its Field Service for the past eighteen years.

The procedure of the Field Engineers is—

1. To make periodic visits to the most important cities and to other cities where the fire loss is excessive or where a special problem presents itself.
2. To keep in contact with all of the cities where there is a paid fire department through correspondence and through the issuance of special material relative to municipal fire protection matters.
3. To maintain contact with all of the smaller cities where a volunteer fire department is maintained through the Volunteer Firemen's Section of the Association.

IN the period from 1924 to 1940 over 11,000 personal visits by the Association's field engineers have been made to some 400 cities. As a matter of general policy the engineers have maintained contact with the insurance rating bureaus and with the National Board of Fire Underwriters. The local fire chief is one of the first points of contact in any city visited and wherever possible all recommendations made by the field engineers in any city are in harmony with the recommendations made by the fire department and by the insurance interests concerned. N.F.P.A. members in the cities visited are consulted by the field engineers wherever possible.

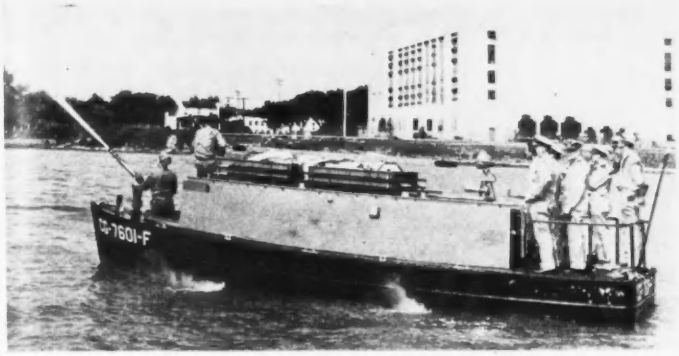
Much of the time of the field engineers in the early years of this operation was devoted to organizing local fire prevention committees through Chambers of Commerce and other local organizations. One of the principal functions of this Service is to suggest programs for action by local fire prevention committees based on a study of the local fire record. The Field Engineering Service has been utilized to collect information for N.F.P.A. technical committees; to investigate wherever possible serious fires or conflagrations as they occur throughout the country; to attend meetings of fire chiefs and other groups concerned with fire protection; to maintain contact with state and provincial fire marshals and with city fire marshals, city building inspectors and other city officials concerned with various phases of local fire protection effort. The Field Engineers have frequently appeared before legislative committees, both state and local, on behalf of important fire protection legislation. The engineers have also carried out special surveys for local municipalities and governmental research bodies and others requesting such service.

The Board of Directors of the Association in January, 1941, directed the executive office to concentrate its attention on the problems involved in National Defense, and since that time practically all of the Field Engineering Service work has been devoted directly to defense and war effort. Through the Field Engineering Service the Association has been able to maintain direct contact with the Army, Navy and Coast Guard Service; the Office of Civilian Defense; the War Production Board, and similar agencies. The Field Engineers Service will be devoted to the successful prosecution of the war effort for the duration.

THE organization and promotion of the Volunteer Firemen's Section of the N.F.P.A. and the editorial production of the monthly publication VOLUNTEER FIREMEN have been considered a logical and necessary part of the Field Engineering Service of the Association since the Volunteer Firemen's Section was organized in the fall of 1933. Through this section the Association has been able to maintain regular contact with 13,000 odd municipalities in the United States and Canada where local volunteer fire departments are organized.

Specific activities with which the field engineers concern themselves are many and varied. Some idea of them may be obtained from the following brief list:

1. The improvement of state and local fire records.
2. The study of and recommendations for fire department personnel and equipment.
3. The promotion of adequate firemen's training.
4. The organization and improvement of inspection procedure by fire departments.



Coast Guard Fireboat Fleet

According to Vice Admiral R. R. Waesche, Commandant, U. S. Coast Guard, a fleet of almost 250 fireboats manned by Coast Guard personnel, is being placed in service to protect various U. S. ports.

Of these vessels, 101 are of a new jet-propelled type illustrated in two views above. Produced by the Handley Engineering Service of Prospect, Ohio, these have an overall length of 50 feet, 6 inches, a motor beam on deck of 10 feet, 6 inches, and a draft of only 18 inches. The boats are equipped with four pumps each capable of ejecting 700 gallons per minute at 120 pounds pressure. To propel the boat, water is sucked in through a forward opening and discharged through an opening aft. Valves may be shifted to reverse the flow, or to eject the water through monitor nozzles or hose streams. The vessels are able to move at about 10 knots.

To supplement these new fireboats a considerable number of trawlers and other commercial vessels have been fitted out as fireboats. These craft carry from two to six self-contained 500-gallon pumping units. A typical fireboat conversion job is shown at the right.

5. The promotion of inspection of dwellings by fire departments.
6. The promotion of adequate investigation of all fires.
7. The promotion of mutual aid programs.
8. The promotion of adequate fire alarm telegraph systems.
9. The promotion of adequate salvage work.
10. The promotion of local arson squads.
11. The encouragement of public relations work by fire departments.
12. The promotion of the campaign for the standardization of hose threads.
13. The promotion of modern building codes.
14. The promotion of adequate fire prevention codes.
15. The promotion of ordinances prohibiting wooden shingle roofs.
16. The campaign for the model state fireworks law.
17. The campaign for the model arson law.
18. The promotion of courses of fire prevention education in schools.
19. The promotion of Fire Prevention Week.
20. The promotion of training schools for watchmen.
21. The study of local conflagration hazards and recommendations for their elimination.
22. The campaign for the removal of old and dilapidated buildings.
23. The study of automatic sprinkler and other private fire protection for the congested areas of cities.
24. The study of the hazards of schools, hospitals, and similar institutions.

IT is difficult, of course, to arrive at any estimate as to the over-all value of this persistent long-time effort to promote fire protection and fire prevention on this continent. Perhaps the Field Engineering Service can claim some small share in the decline of fire losses of recent years as indicated by the following tabulation:

Five-Year Period	Average Yearly Fire Loss
1921 - 1925	$529,000,000
1926 - 1930	492,000,000
1931 - 1935	326,000,000
1936 - 1940	270,000,000

Certainly the tremendous increase in fire prevention work generally throughout the country in the past decade or two plays its important part in the reduction of fire loss and the Field Engineering Service has contributed substantially to the growing interest in fire prevention educational work.

• • • •

Local Defense Council Organization

A MUCH needed document was recently issued by OCD entitled "Organization Outline for Local Defense Councils." This document should do much to clear up fuzzy notions which have been abroad as to the functions of a defense council and particularly of the relationships of the defense council to the citizens' defense corps. The fire department, including auxiliary firemen, is a part of the citizens' defense corps. The defense corps is an active organization to do the real work of protection. The defense council, however, is a committee. Its principal functions are planning. It is recommended that the work of the local defense council be broken down into two groups of activity: (1) civilian protection, and (2) civilian war services. In the latter category are such matters as salvage, transportation, nutrition, recreation, housing, war savings, and other miscellaneous activities.

These latter are to be handled under the OCD recommended plan by a local Citizens' Service Corps, which is separate and distinct from the Citizens' Defense Corps. The recommended separation of these two activities is likely to make it possible for civilian protection plans and the work of the citizens' defense corps to proceed in such a way that the activities in civilian protection are not cluttered up with various social service and welfare activities.

The social service activities are important, but so many of them have been added to the responsibilities of the defense councils that there has been a tendency for them to usurp attention which civilian protection matters require.

A VOLUNTEER FIRE DEPARTMENT REPORTS ITS SUMMER WORKOUTS

PROBABLY no volunteer fire department has had a more interesting summer program this year than the Lost Acres Fire Department located at Granby, Connecticut. This town of 1,500 persons in the Connecticut tobacco growing country had no fire department until a few years ago. Then former Hartford, Connecticut, Fire Commissioner Horace B. Clark, a long-time N.F.P.A. member, provided fire equipment to protect his estate in North Granby and initiated what has proved to be a model rural fire fighting organization that now protects the entire township.

From the start Commissioner Clark has stressed the importance of proper training for the pump operators of the department. He has customarily maintained at his Lost Acres estate a pumping engine primarily for training purposes. An ideal suction pond is available near the house to provide water for fire fighting as well as for the training of pumper operators. The provision of a training machine has not only prevented wear and tear on the regular first-line apparatus which includes a new 500-gallon pumper, but it also provides additional equipment for use in the event of large fires or simultaneous calls.

That the training program of the Lost Acres Fire Department has been effective is shown by good "stops" that have been made on many rural fires by the department under the direction of Chief Vernon S. Jenkins. To supplement the booster tanks on the department's four pumpers, brooks and farm stock tanks are depended upon as the chief sources of water supply. For this reason it is considered particularly important that the men be thoroughly familiar with the operation of the pumps at draft.

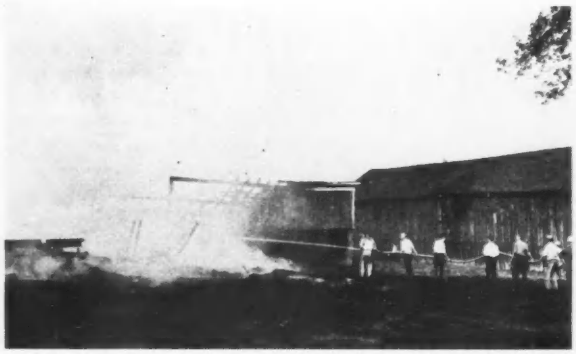
To further aid the officers and pump operators of the department make quick and effective pressure calculations for any fire layout, the department recently published its own printed leaflet describing the four pumpers operated by the department and giving examples of short cut calculations needed to provide effective fire streams.

WHEN planning the department's summer training program for pump operators, Commissioner Clark was impressed by the fact that the training machine formerly used by the department was equipped with a rotary type pump, whereas the department's newest pumper is of the centrifugal type. Further, the pumps to be supplied by the Government as part of the civilian defense program are likewise to be of the centrifugal type. For this reason it seemed logical to provide a pump of this type to supplement the training given to the pump operators of the department.

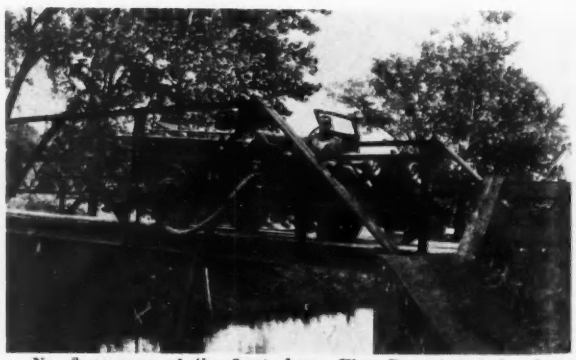
This objective was accomplished in a most novel and interesting manner. A 250-gallon-per-minute front-mounted pump was ordered for installation on the department's No. 1 pumper, a Reo Speedwagon truck. This truck was already equipped with a 300-gallon-per-minute rotary pump under the seat. This 19-year-old machine had been completely rebuilt subsequent to its purchase by Commissioner Clark in 1936. Thus the Lost Acres Department's No. 1 machine is perhaps the only pumper operated by a volunteer department that is equipped with two distinct major pumping units.

The installation of the front-mounted pump on this machine had several advantages. It utilized a machine on hand and made it unnecessary to hunt up another suitable truck chassis. It also made it possible to instruct men in the operational characteristics of both rotary and centrifugal pumps using the same unit.

After the second pump was installed on the No. 1 pumper there was immediate curiosity to see what the performance might be with both pumps operating at the same time. Of course, it was not expected that the four-cylinder motor operating at about 1,500 r.p.m. would be able to give 550 gallons per minute at the usual 120 pounds discharge pressure used in capacity test runs. However, the dual pumper in numerous tests has by far exceeded expectations and has delivered as high as 615 gallons per minute from the two pumps when operating at draft. With this large discharge the limited motor power made it necessary to keep the discharge pressures at the pumps down close to 50 pounds. However, nearly as impressive discharge capacities of the combined pumps were obtained at pressures as high as 60 to 70 pounds. Commissioner Clark points out that these results nearly double the value of the machine for rural work where the use of small nozzle tips makes friction losses in the hose of relatively little importance. In one series of tests operating from a hydrant in a nearby town, a combined discharge as high as 686 gallons per minute was obtained at safe motor speeds. This more than doubled the original rated capacity of the machine.



This typical barn fire was fought by the Lost Acres Fire Department of Granby, Connecticut, on August 11. The blaze was four miles from the fire station and the barn was beyond saving upon arrival. The large wooden tobacco shed at the right was protected by the operation of two booster lines while a 2½-inch line was spilled to a brook 700 feet distant. Later a wye was inserted in the line to supply two lines used to overhaul the hay.



No. 2 pumper of the Lost Acres Fire Department is shown taking suction from a brook during the barn fire illustrated in the left-hand picture. Commissioner Clark points out that the operator had followed training instructions in providing both suction and discharge hose with protection against chafing, and by placing a pail under the cooling water discharge. There are very few hydrants in the area served by the L.A.F.D.

FOLLOWING the initial success of the dual pumper, L.A.F.D. No. 1. Commissioner Clark obtained a 400 g.p.m. front-mounted centrifugal pump for installation on another Reo Speedwagon. This old machine has been equipped with a 100-gallon booster tank, 750 feet of 2½-inch hose, 450 feet of 1½-inch hose and essential fire fighting appliances. It was commissioned as L.A.F.D. No. 4. It is intended to utilize this machine for the training of auxiliary firemen. Commissioner Clark contemplates that the machine may be loaned for training purposes in various parts of the State of Connecticut, in places where centrifugal type pumps are to be provided by the Government as a part of the civilian defense program.

Several members of the Connecticut Drillmasters' Association have been interested spectators at a number of the trials of both the dual pumper and the No. 4 pumper. The operation of these pumpers has given observers an opportunity to check fire stream data under numerous hose layouts with lines up to 1,000 feet long and with varying nozzle sizes. Commissioner Clark reports that in many cases the results obtained were surprisingly near the results to be expected from the usual published fire stream tables.

● ● ● ●

Schoolboy Firemen Do a Good Job

A GOOD job of fire fighting was done by a volunteer fire department made up of high school lads when fire destroyed three business buildings in Spencer, West Virginia, on August 28, according to a report of the West Virginia Inspection Bureau (member N.F.P.A.). The Spencer department was formed at the insistence of the Bureau just five months prior to the fire. The department was trained by Captain Thumm of the Charleston, West Virginia, Fire Department. Bruce Parrish, a high school senior and Chief of the Spencer Fire Department, received training at the 1942 fire school at the State University.

When the department answered the alarm three buildings were seriously involved. The first line was taken into an adjoining store and prevented the spread of the blaze through an unprotected doorway piercing a 24-inch firewall. Additional lines were placed to prevent the spread of the fire in other directions. Several outside departments which responded to calls for aid were unable to give effective help because local hydrant and hose threads were non-standard.

No. 1 pumper of the L.A.F.D. with its two pumps in operation at the suction pond provided on the "Lost Acres" estate of Fire Commissioner Horace B. Clark. When the picture was taken lines from both pumps were siamesed to supply a single nozzle. The suction hose from the 300-gallon rotary pump under the seat and from the 250-gallon centrifugal front mounted pump are both visible. In the group observing the test were former Chief Michael T. Keena of Hartford, now with the State Defense Council; Chief Thomas H. Donnelly of West Hartford, president of the Hartford County Fire Chiefs' Emergency Association; First Deputy Chief Henry G. Thomas of Hartford; and Chief Vernon S. Jenkins of the Lost Acres Department.

Three husky streams of water are thrown back into the suction pond. Two streams were provided by the centrifugal pump and one by the rotary pump of the department's No. 1 pumper. Combined flows in excess of 600 gallons per minute have been obtained from this unique dual pump arrangement.

An old Reo truck equipped with a 400-gallon-per-minute centrifugal pump and christened L.A.F.L. No. 4, has been recently rigged as a training machine for auxiliary firemen. This unit, equipped with booster tank and both 1½-inch and 2½-inch hose, has been provided to permit the training of auxiliary firemen without use of the regular pumping apparatus of the department.

"We couldn't make the rear of the store where the flames were coming up the open stairway until we could get a ladder to the roof and open up above the fire. By that time we found the fire was again ahead of us."

Recipe For Destruction

By Warren Y. Kimball

The conversation reported here, while fictitious, is based upon an actual fire incident in a typical small city. The conditions described are as reported to the N.F.P.A. Department of Fire Record. The fire has been selected as typical of some 72,000 fires occurring each year in mercantile properties in the United States. Such fires cause loss in excess of sixty million dollars a year largely because property owners are uninformed regarding the simple factors that largely determine whether a building is likely to fall prey to a destructive fire.

"IT'S a darned shame, Chief!

"How is it that a fire in a good brick business building got away from your department and caused such a large loss? It looks to me as though the fire department should have been able to have put that blaze out with only a few hundred dollars loss. Instead the loss is reported in today's Press as over $50,000. You know Jim Coffman who owns that property—one of the finest chaps in town. Always took care of his property. That fire is going to be an awful blow right now when we are up against high construction costs and priorities on necessary materials."

The speaker was a middle-aged business man; the chairman of the local business men's club. He was just a bit worried by the thought that a similar misfortune might sometime strike his own property. He really didn't like to think about it but having cornered the weary Fire Chief who was having a hot cup of coffee at the local restaurant, he was out to get the inside story on the all-night blaze which had damaged the big Coffman Block.

The Chief curled up a corner of his lips into a half-smile which perhaps indicated something like pity for his friend's lack of understanding. Years of friendly battle with such "practical business folks" who dominated the local budget committee, and who had made him sweat for every cent of appropriation needed by his department, had taught the chief how to answer his self-appointed interrogator and still keep in good humor. Here, in fact, was a chance to do a little missionary work—to educate one of the local bigwigs.

"Well," replied the Chief, "you're a big shot in this town. I think it's worth five or ten minutes to tell you about that blaze. That $50,000 loss you spoke of was built into that building. It was a perfect recipe for destruction by fire.

"To start with, you speak about 'a good brick business block.' It is true that the Coffman building did have brick walls—was a good looking structure from the outside. But do you recall back a few years—when I urged the council to pass a modern building code for this town, you and Jim and some other business folks complained that a code would increase the cost of construction and discourage building? Actually the cost of safe construction for the Coffman Block would have been little, if any, more if adequate building regulations had been in force. You also contended that building laws may be needed for cities but not in a town of this size, although I was urging only the minimum amount of regulation needed for safety.

"It was the year after the building code battle when Jim built the Coffman Block. Its brick walls were about the only thing 'fireproof' in it. The floors were of wood on ordinary wooden joists. Partitions were like open flues built of wooden lath nailed against wooden studs. A person like yourself seeing the plastered walls, and the metal ceilings hiding the wooden joists, would not realize that every partition and the ceilings were natural raceways for the spread of concealed flames. There was no fire-stopping as would have been required by the proposed building code.

"What was much worse, an open stairway went from the basement to the second floor. There was not even a wooden enclosure or a draft curtain to prevent the natural upward move-

ment of any heat and flame resulting from a cellar fire.

"After the building was nearly finished I went to Jim and pointed out that from a fire fighter's point of view the cards were stacked against us should a blaze occur. I urged him to at least have the basement sprinklered because that was where a bad fire would be most likely to gain headway unobserved. With our small department and limited equipment a cellar blaze is the toughest sort of fire to beat by manual means.

"Jim made it clear that he thought I was getting 'too jumpy on the subject of fire hazards.' His building had 'no special fire hazards!' The only occupants were to be a clothing store and a drug store downstairs, and a railroad ticket office upstairs. He allowed that there was nothing about the building that could possibly cause a fire that my department couldn't handle. 'We gave you a new pumper last year, didn't we?' he asked. 'Stop looking for fires under your bed like an old maid.'

"Well, this town has no fire prevention ordinance that permits me to compel installation of really effective fire protection safeguards, although I do insist on cleanliness and good housekeeping as a basic fire prevention rule whether convenient or not.

"EARLY this morning the inevitable happened. It was just 3 A. M. when the night man at the diner on the corner happened to look down Main Street and saw a cloud of haze or smoke. At first he didn't think much about it because a lot of soft coal is burned in this territory but soon it occurred to him that no one would be firing a furnace that early. While hesitating about what action to take he noticed an orange glow. That convinced him that there was a blaze and he called the operator.

"The driver of the pump and I were down there in less than two minutes and several of the volunteers living nearby were quickly on hand to help with the first line. By that time the flames were already coming up that open stairway from the basement. The smoke was so thick we couldn't make the rear of the store to reach the stairway until we could get a ladder to the roof and open up. By that time we found the fire was again ahead of us because banked up heat had already caused the fire to mushroom on the top floor and fire had entered the roof structure under the metal ceiling.

"We got our second line in on the second floor going over a ladder from the front and we called on Berryville to come over and help us. They laid a line to the rear and helped us advance our first line into the basement to control the main body of fire.

"We think we did well to hold the fire to the rear half of the building. It was a good example of the handicap that a fire department is up against where we have no sprinkler protection and no fire alarm service to give us a quick warning. If sprinklers had been installed as I suggested, the waterflow alarm would have given a warning as soon as the first sprinkler head fused. Upon arrival we would have found water already soaking the fire area.

"As it was, most of the stock in both stores was damaged to at least 50 per cent of value by smoke and water although we used our few salvage covers to protect as much of the stock as we could. We need more covers.

"We had to pull down a considerable amount of the plaster and the metal ceilings to get at the fire in concealed spaces. The boys took quite a bit of punishment from smoke doing the job."

The business man interrupted. "How did a fire get started at that time of night in a building which had been closed for a number of hours?"

"That fire started in a coal bin which had been filled with a low grade of soft coal in anticipation of a possible fuel shortage this winter. Apparently the fire was due to spontaneous ignition of the coal. It probably smouldered for some time, sending heat and flammable gases through the building before breaking out enough to be visible from the outside. That's about all there is to the story. The building was built with odds favoring the fire. When the siren blows we have to face the situation as it is—not as it should have been. It is up to you property owners to cooperate in making each individual building safe against fire."

"Well, Chief, what you have told me this morning is a mighty important bit of information. It is hard for us citizens and taxpayers to understand the conditions that cause big fires. You have analyzed that Coffman Building fire just about the way old Doctor Jones would diagnose an ailing body. I wish you would come down to the luncheon club next week and give the rest of the business men this same story. If you do, I am sure you will have more converts to your fire prevention campaign when the boys hear how easy it was for a fire to sweep through one of our best blocks."

COMPLETELY REVISED TEXT
ON
MUNICIPAL
FIRE
ADMINISTRATION

This 600 page text on Municipal Fire Administration contains matter never before in print.

Designed primarily for use in the practical correspondence course in Municipal Fire Administration, sponsored by the International City Managers' Association, this new text is of value to everyone interested in the direction or operation of a fire department.

The problems of volunteer and part-paid fire departments, including those of equipment, rural water supplies, mutual aid and county organization, fire fighting tactics and strategy, are given attention.

The text is furnished as part of the $35 fee covering the complete cost to a student of the course. This fee includes the review and correction of lesson papers. In no way can men studying for promotion in a fire department receive a more complete understanding of fire department operations and administrative problems.

Copies may also be obtained by persons not enrolling in the course at a cost of $7.50.

OUTLINE OF COURSE

The Municipal Fire Problem.
Fire Insurance Classification of Cities.
Organization for Fire Protection.
Personnel Administration.
Water Supply for Fire Service.
Department Buildings and Equipment.
Distribution of Equipment and Personnel.
Fire Alarm Signaling Systems.
The Technique of Fire Fighting.
Legal Aspects of Fire Prevention.
Work of Municipal and State Fire Prevention Agencies.
Fire Investigation and Incendiarism.
Records and Measurement of Results.

Institute for Training in Municipal Administration
1313 East 60th St., Chicago, Ill.

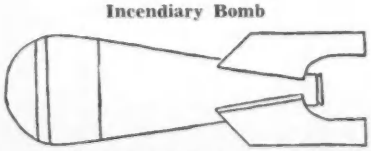
Japanese Fire Bombs

THE September issue of VOLUNTEER FIREMEN commented editorially upon the fact that the techniques of handling incendiary bombs are of much less relative importance than knowing how to put out any fires the bombs may start. Mention was made of the fact that most of the training in handling incendiary bombs had centered around the 1 kilogram (2 pound) magnesium bombs dropped by the Nazis in their fire raids on England two winters ago.

Recently the Chemical Warfare Service of the U. S. Army has advised that four different types of incendiary bombs are known to have been used by the Japs in their recent campaigns. These diabolical devices apparently were not designed by the "monkey men" to facilitate their extinction under the genteel squirt of a stirrup pump operated by a lady fire spotter. As a matter of fact, the Chemical Warfare Service tells us that even the little two pound luminaries used to spread the light of the "new order" are arranged to explode with shrapnel effect covering a radius up to 50 yards. As any fireman knows, such an incendiary bomb can outrange a 2½-inch hose line, not to mention the feeble stirrup pump, as far as safe operating distances are concerned. The incendiary agent in these small bombs is red phosphorus which is ignited by a picric acid charge in an exploder tube. When these bombs go off it is not a matter of creeping up on them from behind a chair and saying "boo —you're out," but rather of spilling a line and putting out any fires that may have started in true fire-fighter style.

Now that we have told you about the smallest of these Japanese fire bombs, it may be interesting to know that the other types are big babies of 110 or 132 pounds filled with phosphorus coated rubber pellets, thermite, and solified oil respectively. A more detailed description of each of the Japanese fire bombs follows.

1 Kilogram (2.2 lbs.)
Incendiary Bomb

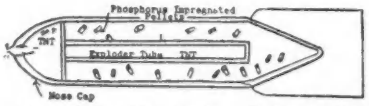


Overall length: 10.2 in. Body length: 9.05 in. Diameter of body: 3.0 in. Tail length: 4.3 in. Diameter of tail: 3.1 in.

Filler: This bomb serves a dual purpose as an incendiary and anti-personnel bomb. The filling of the bomb consists of red phosphorus in the tail portion with an exploder tube filled with picric acid.

Operation: This bomb has a hemispherical rubber nose cap with a mushroom-shaped striker inside. When the bomb lands the striker pierces the detonator which initiates the picric acid in the exploder tube. The exploder tube, in turn, fires the red phosphorus and at the same time explodes the bomb into small fragments which have a shrapnel effect up to approximately 50 yards.

50 Kilogram (110 lbs.)
Phosphorus Pellet Bomb

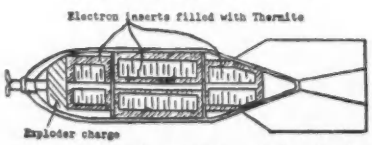


Overall length: 40 in. Body length: 33.0 in. Diameter of body: 7.0 in. Tail length: 15.0 in. Diameter of tail: 9.0 in. Markings: painted blue-gray, 1 in. white band near center, red band behind fuse.

Filler: The bomb is filled with cylindrical black rubber pellets, 1-1/16 inches long by 1 inch in diameter, surrounding a central exploder tube. The pellets are impregnated with phosphorus, and the bomb case is filled with liquid, preventing ignition of the phosphorus.

Operation: When the bomb falls, the fuse ignites the exploder tube charge which ruptures the case, scattering the pellets to distances of as much as 50 yards. When the pellets dry out, the phosphorus ignites the rubber, causing small fires which burn 5 to 7 minutes with a flame 4 to 6 inches high and a grey smoke with the odor of burning rubber.

60 Kilogram (132 lbs.)
Thermite Incendiary Bomb



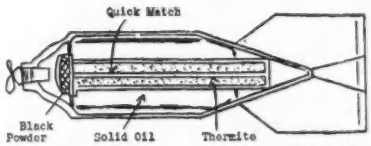
Overall length: 39.8 in. Body length: 28.2 in. Diameter of body: 7.8 in. Tail length: 18.2 in. Diameter of tail: 9.7 in. Markings: bluish-gray; tips of tail vanes painted red.

Filler: There are three magnesium alloy "fire pots" contained within the body of the bomb. One of the "fire pots" is in the cone of the tail, while the other two are in the main body of the bomb. Each of the "fire pots" is filled with thermite which, when ignited, melts and ignites the magnesium case of the "fire pot." There is also a starter pot which, when ignited by the fuse, serves to ignite the "fire pot" thermite filling.

Operation: When the bomb falls, the fuse ignites the propelling charge which ejects the "fire pots." At the same time, the fuse ignites the starter pot which in turn fires the "fire pots." The burning "fire pots" are scattered when ejected from the bomb case and act as separate incendiary bombs, thus increasing the radius of damage.

In some cases, the bomb fails to act properly and penetrates the ground before the "fire pots" have been ejected. In such instances, the "fire pots" will be found in or near the hole of entry. This is usually indicated by a considerable volume of grey smoke issuing from a hole in the ground. The grey powder of burned thermite may also be found in the hole of entry.

60 Kilogram (132 lbs.)
Solid Oil Incendiary Bomb



Overall length: 41.6 in. Body length: 25.3 in. Diameter of body: 9.5 in. Tail length 16.4 in. Diameter of tail: 13.2 in. Markings: blue-gray; tips of tail vanes painted red.

Filler: This bomb has a filling of solidified flammable oil surrounding a central ignition and exploder tube of thermite. There is a propelling charge located in the nose of the bomb which is ignited by the nose fuse.

Operation: When a bomb falls, the fuse ignites the exploder charge which ejects the inner case containing the oil. At the same time, the fuse ignites the thermite in the exploder tube. The thermite in turn melts and ignites the oil which is scattered.

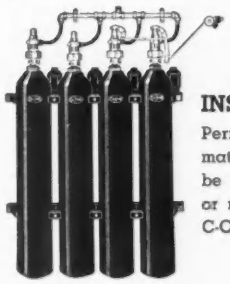
If these bombs are found unexploded, they are in a highly sensitive condition. No attempt should be made to move the bombs but they should be reported in the same way as any other unexploded bomb.

Could A Fire Knock You Out ?

Perhaps your answer is, "No. We have fire extinguishers and we're only a few blocks from the fire house." Good. But maybe your production conditions are more hazardous today? What about water damage? How long will production be stopped until the fire is under control? And how long might you be shut down after a fire?

IT'S SAFER because IT'S FASTER

With a fast blast of cold C-O-TWO carbon dioxide gas, a sudden blaze is literally knocked out before you could yell "FIRE". Carbon dioxide, one of the fastest fire extinguishing agents kills fire in split seconds—without damage to equipment or materials.



C-O-TWO PROTECTION

INSTANT ACTION

Permanently installed automatic or manual system may be engineered to protect one or more spaces from the one C-O-TWO installation.

FOR FAST KNOCK OUT

In laboratory or bench fires, these small, fast acting 4, 10 and 15 pound cylinders of C-O-TWO carbon dioxide gas kill fires almost instantly.

C-O-TWO

QUICK AS THE WIND

With C-O-TWO hand and wheeled type portables, carbon dioxide is directed at the base of the fire, killing the fire—without damage—in seconds.

SMOTHERS FIRE

Fixed hose reel type with 25 feet of fast uncoiling, nonkinking hose, will put out fires in electrical machinery, diptanks or storage vaults.

C-O-TWO is a registered trademark. To be safe, specify C-O-TWO and this company's name

C-O-TWO FIRE EQUIPMENT COMPANY

NEWARK, NEW JERSEY

Sales and Service in the Principal Cities of United States and Canada

JOIN THE N.F.P.A.

Every member receives a handsome membership certificate illustrating the history of fire protection.

N.F.P.A. membership is available to fire companies and fire departments through the Volunteer Firemen's Section of the National Fire Protection Association. Here's the simple plan:

MEMBERSHIP in the National Fire Protection Association costs $10 per year. Through the Volunteer Firemen's Section fire companies may obtain the advantages of N.F.P.A. membership.

• As a member, the fire company receives at its headquarters a set of all regular N.F.P.A. publications. This includes the *Quarterly* magazine, as issued.

• As a special service to the Volunteer Firemen's Section, each member fire company is entitled to have copies of the monthly magazine VOLUNTEER FIREMEN sent to the home addresses of 10 firemen.

• If more than 10 firemen want to receive the magazine, an additional $1.00 should be sent in with the membership fee for each fireman in excess of 10 enrolled. Because of the large amount of material mailed to members, not less than $10 can be accepted from any company.

Practice Incendiary Bombs Available—But!

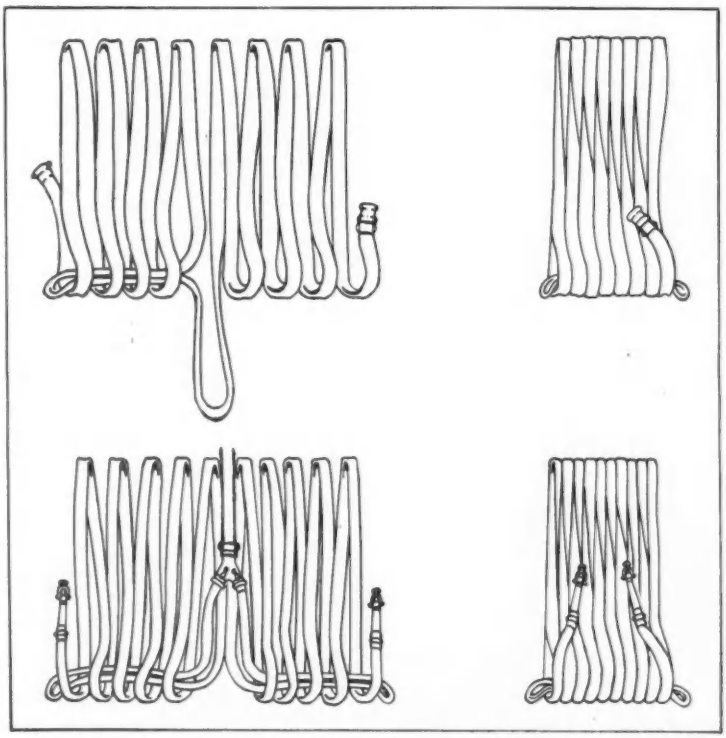
ACCORDING to a recent issue of the OCD News Letter, the Chief of the Chemical Warfare Service of the War Department says that practice incendiary bombs are available to authorized persons for demonstration purposes. The operation of WPB General Limitation Order L115, presumably issued in an attempt to make sure that saboteurs did not obtain these bombs, had had the effect of making it essentially impossible for local authorities to get practice incendiary bombs for demonstrations.

The procedure for obtaining practice incendiaries is, according to OCD: "A prospective purchaser of incendiaries must first obtain an explosives purchaser's license from the Bureau of Mines. Then he must make out triplicates of 'Application for Authorization for Purchase of Practice Incendiary Units under War Production Board General Limitation Order L115' obtainable from the Office, Chief of Chemical Warfare Service, Washington, D. C. Each must be certified by the local Office of Civilian Defense property officer, mayor or city manager, and attached to a statement from either the local chief of police or fire chief that the demonstration will be properly supervised.

"Applications are next forwarded to the Training Section of the Protection Branch of the Office of Civilian Defense in Washington. They are then sent to the Chemical Warfare Service which returns applications, approved or rejected, to applicants. If approved, applications may then be forwarded to the manufacturer for the order."

Behind this formidable barrier of red tape, it is still a question as to how many local authorities will get incendiaries for training purposes.

San Antonio Skid Hose Load



Skid loads in use by the San Antonio, Texas, Fire Department are designed to make it easy for one man to quickly spill a load of 2½-inch hose (upper illustrations) or a load consisting of two lines of 1½-inch hose (lower drawings). The loads are spilled using the handholds provided by extending the center fold of hose so as to make a binder loop, making it possible to pull off the entire skid load in one movement. The sketches at the left are arranged to show how the loads are formed while those at the right show the loads compact as actually carried on the apparatus. It may be noted that the 2½-inch skid load (upper drawings) are shown with a double female coupling attached to the end of the line. This coupling permits the load to be used quickly in a hydrant-to-fire layout. Where a fire-to-hydrant layout is desired, the double coupling is removed and replaced by a playpipe. The skid load using 1½-inch hose is provided with attached playpipes ready for use in a fire-to-hydrant layout. (Courtesy A. L. Rathke, District Chief, San Antonio, Texas).

No Hose For Stirrup Pumps

THE OCD recently announced that Army and Navy demands for the entire supply of plastic that was scheduled for use in making hose for stirrup pumps has held up the letting of contracts for some 2,258,000 stirrup pumps which were to be distributed or sold under government regulation to private citizens.

However, the manufacture of a like number of 4-gallon pump tank extinguishers was not affected by the shortages. These pump tanks will be distributed in target areas by the Government with four pump tanks assigned to each city block but remaining Federal property. These are much more effective units than the stirrup pumps for which the hose could not be obtained.

NEW TEXTS AND FILM

A NEW edition of "Municipal Fire Administration" has been announced by the Institute for Training in Municipal Administration, an affiliate of the International City Managers' Association, 1313 East 60th Street, Chicago. This 600-page book is the text used in the Institute's correspondence course for fire department officers, municipal officials, and other persons interested in the administrative and executive aspects of fire department operations. The book has been almost completely revised with much new material added to each of the chapters in the light of recent developments in fire protection. Firemen planning to enroll in the Institute's course will now receive the new text. Copies may also be obtained by persons not enrolling in the course at a cost of $7.50. Copies of the previous edition may be exchanged for the new text at a cost of $5. Inquiries should be sent direct to the Institute.

THE Rhode Island State Council of Defense has issued a 98-page illustrated manual for auxiliary firemen. The manual has 20 chapters covering briefly elementary fire fighting operations and other subjects specified for the training of auxiliary firemen.

"BEFORE the Alarm," a one-reel film dramatizing fire prevention activities in a typical community, has been produced by the National Board of Fire Underwriters, 85 John Street, New York, N. Y. This picture is available from the National Board in 16 and 35 mm. sound film. It is designed to tell the public of the work of the National Board engineers and is said to include numerous "shots" of fire department activities.

TRADE MARK
GAMEWELL
REG. U. S. PAT. OFF.

Specialists in Public Safety

Manufacturers of Emergency Signaling Systems

FIRE ALARM
POLICE SIGNALING
AIR RAID WARNING
INDUSTRIAL FIRE ALARM
FIRE & WATCHMEN SUPERVISORY
AUTOMATIC FIRE DETECTION

Two thousand municipalities, several thousand industrial plants and many of the largest institutions now use Gamewell Systems for the protection of life and property and to ensure the permanency of established business.

We freely cooperate in planning protective Signaling Systems.

THE GAMEWELL COMPANY
NEWTON UPPER FALLS, MASSACHUSETTS

CLEAR
WATER
NEVER
HURT
ANYTHING
★

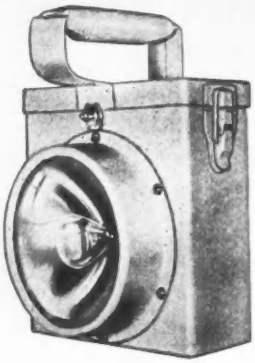
INDIAN
Fire Pumps Use Only Clear Water

TODAY is a period of rapid changes. Not the least of these is the wide preference shown by municipal and volunteer fire departments for INDIAN FIRE PUMPS. The fact that INDIANS require no scarce, expensive chemicals, that they may be refilled at any water supply, that they are the easiest, fastest way to handle grass, room, roof and incipient building fires—makes them number one choice of the men who KNOW. No hose to lay, water damage is minimized, clear water costs nothing—all are highly important in selecting YOUR INDIAN back pack fire fighters.

D. B. SMITH & Co., 412 MAIN ST., Utica, N.Y.

Carco-Conwhit Sales Co. Portland, Ore.
Hercules Equipment & Rubber Co. San Francisco, Cal.
PACIFIC COAST AGENTS:
Mill & Mine Supply, Inc. Seattle, Wash.
The Conwhit Co. Klamath Falls, Ore.
Roy G. Davis Company Los Angeles, Cal.

MASTER ★ LIGHTS



WATERPROOF
BATTLE LANTERN
for FIREMEN

•

TYPE J2
MASTER ★ LIGHT

•

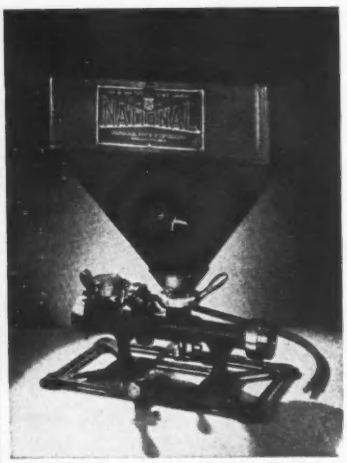
TOP QUALITY 2-CELL LIGHT

•

BATTERIES MAY BE CHANGED
IN 30 SECONDS

•

"MASTER★LIGHT★MAKERS"
CARPENTER MFG. CO.
168 Sidney St., Cambridge, Mass.



SPECIAL EQUIPMENT
FOR FIRE DEPARTMENTS
NATIONAL
SF-21
FOAM GENERATOR
for running board mounting
Capacity—
1,100 gallons of foam per minute
Write for details to:
NATIONAL FOAM SYSTEM
INCORPORATED
1633 Sansom St., Philadelphia, Penna.

$10.00-$3.00-$2.00 EACH MONTH

PYRENE PRIZE LETTER CONTEST

EVERY month the above cash prizes are paid out to firemen whose letters contain the best stories of actual fires put out with approved extinguishers. Get the facts down on paper and we will attend to any rewriting necessary to get the story into the space available. The contest is sponsored cooperatively by the Pyrene Manufacturing Company of Newark, N. J., and VOLUNTEER FIREMEN to bring forth the value of fire extinguishers.

FIRST PRIZE—$10.00

MELVIN CLARK
Pullman Volunteer Fire Department,
Pullman, Washington

A Tight Squeeze in a Bus!

During vacation my wife and I were travelling in a motor coach between Spokane and Seattle. The coach had built-in ash trays. The jarring of the coach sometimes caused the lids of these to fly open. Just as it was breaking daylight, flames shot out from under the seat my wife and I were occupying. Needless to say, I was pretty fearful as the bus was loaded to capacity, plus five extra jump seats in the aisle. I hollered to the driver to grab his fire extinguisher. In the meantime people in the back were yelling and crowding toward the front. My wife got a bump on the head when a "lady" tried to push her over a seat. I grabbed up the jump seats as fast as the passengers got up. The driver, after stopping the coach, went back to the fire with a 1-quart carbon tetrachloride extinguisher. Soon the fire was out with no one injured other than from bumps and skinned shins. The newspaper under the seat and the lighted cigarette which ignited the paper, could have caused serious injuries; but thanks to the little extinguisher, our vacation ended O. K.

SECOND PRIZE—$3.00

HAROLD ANDRESEN
Fire Department, Superior, Wisconsin

Large Loss Avoided

Last December I responded with Engine Co. 1 to an alarm for a fire at the Union Terminal Elevator, where a huge grain elevator with a four million bushel storage capacity was under construction at that time. When we got to the fire we found that an oil salamander which was being used to protect the concrete from freezing, had gotten out of control — and was she throwing fire! And what a place for a fire in that forest of lumber which made up the supports for the forms holding the concrete. First we tried a foam extinguisher but due to the construction of the salamander we were unable to blanket the fire. Then we got a 1-quart carbon tetrachloride extinguisher and gave it a couple of shots. I can truthfully say that I never saw a fire go out so fast. The damage from the fire amounted to only about fifty dollars but it is easy to imagine what the damage would have been if this fire had gotten out of control.

THIRD PRIZE—$2.00

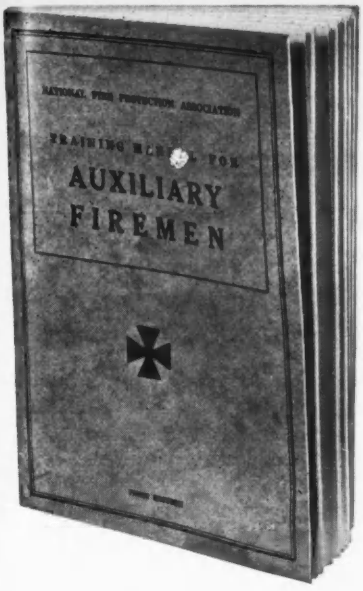
W. M. TATUM, *Chief*
Newellton Fire Department,
Newellton, Louisiana

Machine Shop Fire

On August 7th at 12:55 P. M. our alarm sounded. Upon answering we found it to be from a machine shop. A torch had set fire to gasoline that had been drained from a truck. A five-gallon bucket and a three-gallon bucket each containing gasoline had caught fire under the truck. The men in the shop tried to move the truck, overturning the larger bucket. When we arrived at the scene I took a 2½-gallon foam extinguisher into the shop putting it on the buckets and gasoline. I had very little trouble in getting the gasoline out. Water was used on the rest of the building. Some damage was done to the truck but it could have damaged the building also but for the foam extinguisher.

CONTEST RULES

1. Contestants in the Pyrene Prize Letter Contest must be members of their local fire department.
2. Letters are to describe actual experiences where an approved fire extinguisher of any make has saved lives or property.
3. Trade names may be used but will be deleted in publication. Publishers reserve the right to edit winning letters to permit publication.
4. Each contestant automatically vouches for the truth of the facts presented from his own or others' experience.
5. Only one letter may be submitted each month.
6. Letters must be legibly written in ink or typewritten on white paper, one side only. Preference will be given to letters not over 250 words in length.
7. Letters received after the 8th day of the month will be judged in following month's competition.
8. Monthly prizes in cash will be: 1st, $10.00; 2nd, $3.00; and 3rd, $2.00.
9. Address contest letters to Pyrene Prize Letter Contest, VOLUNTEER FIREMEN, National Fire Protection Association, 60 Batterymarch St., Boston, Mass.



Here's the book that over half a million men are waiting for:

TRAINING MANUAL FOR AUXILIARY FIREMEN

By
HORATIO BOND, Chief Engineer, N.F.P.A.
W. F. HEISLER, Chairman, N.F.P.A. Committee on Firemen's Training
R. J. DOUGLAS, Secretary, N.F.P.A. Committee on Firemen's Training

Based on A Guide for Training Auxiliary Firemen Prepared by the Committee on Firemen's Training National Fire Protection Association

416 pages, 225 illustrations, 7⅝ x 5¼ inches, $1.50 postpaid

NATIONAL FIRE PROTECTION ASSOCIATION
60 Batterymarch Street, Boston, Mass.

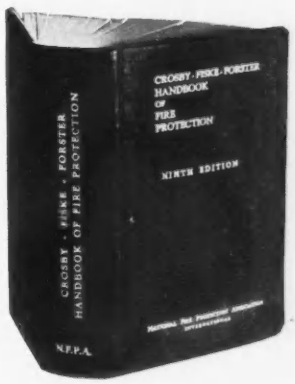
CROSBY—FISKE—FORSTER HANDBOOK OF FIRE PROTECTION

The Ninth Edition of the Handbook of Fire Protection is by far the most comprehensive yet issued. At least thirty percent of the text has been completely re-written. There are dozens of new tables, charts, diagrams and illustrations.

In keeping with the purpose of a reference book, all information is presented clearly, concisely and as far as possible in non-technical language. More than 100 men who are recognized authorities in the various branches of the fire protection engineering profession aided in the task of preparing this edition.

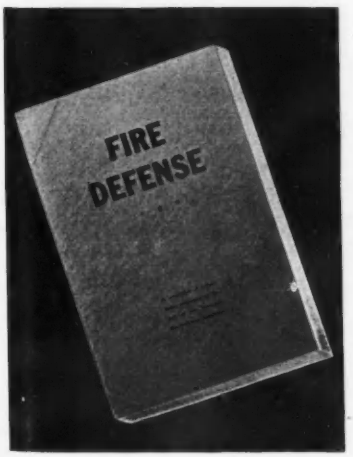
The Ninth Edition of the Handbook was issued last year with a printing of 5,000 copies expected to last for five years. Already the large demand has necessitated a second printing.

NATIONAL FIRE PROTECTION ASSOCIATION
INTERNATIONAL
60 Batterymarch Street, Boston, Mass.



NINTH EDITION

1300 pages, $4.50 Postpaid



232 pages, 154 illustrations, price $1.50 postpaid

FIRE DEFENSE

Vitally Important to Every American Fire Department!

"Invaluable is the word that best describes the copious and excellent contents of this volume compiled by experts in the light of what has happened during two years of war. . . . Its technical background is excellent, its arrangement is clear and concise, and I must again bear testimony to the admirable illustrations."

(From an 8-page review of FIRE DEFENSE, written by former Chief Pordage of Edinburgh, Scotland, Past President of The Institution of Fire Engineers, a British organization.)

PART I.—FIRE FROM THE AIR

PART II.—SABOTAGE

PART III.—ORGANIZATION FOR CIVILIAN DEFENSE

PART IV.—FIRE DEPARTMENTS & FIRE FIGHTING

PART V.—COMMUNICATIONS

PART VI.—DEFENSE PRODUCTION

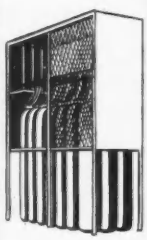
FIRE and how to fight it!

HOW OFTEN SHOULD EXTINGUISHERS BE RE-CHARGED?

Is your plant's fire-fighting equipment in top-notch condition—ready for a sudden emergency?

Even the very finest portable extinguishers cannot retain full effectiveness *indefinitely*.

Some day one of your extinguishers may be called on to save your plant. Insure reliability of your fire-fighting equipment. Follow the simple rules charted below.

CARBON DIOXIDE	DO THIS ONCE EACH YEAR Weigh to detect leakage. If extinguisher shows loss of weight of less than 10% of rated capacity, *stamped on label*, nothing need be done. Recharge if weight loss shows greater than 10%.	WILL IT FREEZE? **no**	
SODA ACID	DO THIS ONCE EACH YEAR Discharge and refill. Mix soda solution outside extinguisher, following manufacturer's instructions. Use lukewarm, not hot water. Wash all parts with water. Examine for clogging or corrosion.	WILL IT FREEZE? **yes** Do not keep outdoors in cold weather.	
PLAIN WATER	DO THIS ONCE EACH YEAR Inspect by removing and weighing carbon dioxide cartridge. Replace cartridge if weight loss exceeds ½ ounce. Inspect hose and nozzle for clogging or corrosion, and check the quantity of water.	WILL IT FREEZE? Ordinarily yes, but some water extinguishers are protected against freezing. Label gives this information.	
FOAM	DO THIS ONCE EACH YEAR Recharge. Mix solution outside the extinguisher according to manufacturer's exact directions. Wash all parts thoroughly with water. Test hose. Examine for corrosion or clogging.	WILL IT FREEZE? **yes** Do not keep outdoors in cold.	
VAPORIZING LIQUID	DO THIS ONCE EACH YEAR Test by partially discharging. Pump a few strokes with extinguisher first aimed upward and then downward. Replace lost liquid, as furnished by manufacturer.	WILL IT FREEZE? **no**	
DRY COMPOUND	DO THIS ONCE EACH YEAR Remove and weigh carbon dioxide cartridge. Replace if it shows loss of weight of more than ½ oz. for 12 lb. extinguisher or 1 oz. for the 20 lb. size. Check quantity of dry compound and determine that it is free-flowing.	WILL IT FREEZE? **no**	
 BUILT-IN CARBON DIOXIDE SYSTEM	DO THIS ONCE EACH YEAR Weigh cylinders to check loss of contents. Blow out carbon dioxide lines. Check all releases, thermostats, tubing, switches, pull boxes and electric lines.	WILL IT FREEZE? **no**	

NOTE: *RECHARGE EXTINGUISHERS IMMEDIATELY AFTER USE, EVEN THOUGH ONLY PARTIALLY EXPENDED.*

MORE EFFECTIVE FIRE FIGHTING

Since December 1941 Walter Kidde and Company has had an unusual war job . . . to make products that save fighting men's lives. These products include high pressure containers for aviation use, special type built-in extinguishing systems, crash trucks, and various flotation equipment.

Since we have fewer Kidde extinguishers* to sell, we are trying to make your existing fire-fighting units more effective. If you want reprints of this series of advertisements, just write to

Walter Kidde & Company, Inc.
1058 West Street, Bloomfield, New Jersey

Kidde

*Formerly known as "LUX" extinguishers

THIS ADVERTISEMENT IS ONE OF A SERIES APPEARING CURRENTLY IN INDUSTRIAL PUBLICATIONS.